

An apparatus and method for suppressing noise is presented. The apparatus may utilize a filter bank of bandpass filters to split the input noisy speech-containing signal into separate frequency bands. To determine whether the input signal contains speech, DTMF tones or silence, a joint voice activity & DTMF activity detector (JVADAD) may be used. The overall average noise-to-signal ratio (NSR) of the input signal is estimated in the overall NSR estimator, which estimates the average noisy signal power in the input signal during speech activity and the average noise power during silence. Two indirect power measures are performed for each band, measuring a short-term power and a long-term power. The power estimation processes are adapted based on the signal activity indicated by the JVADAD. A NSR adapter adapts the NSR for each frequency band based on the long-term and short-term power measures, the overall NSR and the signal activity indicated by the JVADAD. The NSR adaptation may then be performed. The gain computer utilizes these NSR values to determine the gain factors for each frequency band. The gain multiplier may then perform the attenuation of each frequency band. Finally, the processed signals in the separate frequency bands are summed up in the combiner to produce the clean output signal. In another embodiment of the present invention, a method for suppressing noise is presented. An alternative embodiment of the present invention includes a method and apparatus for extending DTMF tones. Yet another embodiment of the present invention includes regenerating DTMF tones.